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A Place to Grow

An Informed Discussion on Agriculture & Land Use in Western Montana

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Executive Summary

Technical Report

About the Author

Elon Gilbert, Ph.D., is a consultant on agricultural development who lives on a working ranch in the Jocko Valley on the northern fringe of Missoula County. He has more than 45 years of experience associated with the U.S. Agency for International Development (USAID), World Bank, and other donor-supported programs. For more than three decades he has been involved in agricultural research and development in Sub-Saharan Africa and Southeast Asia. He has served as project director and chief of party for USAID-supported projects in West Africa and as team leader for a study supported by USAID on the impacts of maize research in Africa.

Dr. Gilbert has held academic posts at the University of Michigan, the University of East Anglia, and the University of Florida. Among the foreign countries in which he's conducted research and studies are India, Sierra Leone, Ghana, The Gambia, and Nigeria, with shorter-term assignments on Cambodia, Sri Lanka, Peru, Ukraine, and other countries. He holds a Ph.D. in applied economics (of agriculture) from Stanford University.

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Principal Author's Preface

This study was initiated and supported by the Montana Building Industries Association and the Montana Organization of REALTORS®.. As part of our research, we consulted with individuals and organizations including the Office of Planning and Grants, Rural Initiatives, the National Resources Conservation Service, the Montana Department of Natural Resources, faculty members of The University of Montana and representatives of private organizations, notably the Community Food and Agricultural Coalition and the Montana Water Trust. I appreciate the study team's being given free rein in our research and the resulting content of this report. The conclusions presented here are the views of myself, as lead author, and they do not necessarily reflect the views of MBIA, MOR, or of any other organization or individual.

Introducing a New Study of Food

The Missoula Building Industries Association and the Missoula Organization *of REALTORS®* sponsored this study to explore two general questions:

- What are the major factors affecting food and agricultural production in greater Missoula?
- How might these factors change over the next 20 years?

Our focus is the local food system (LFS), in which people grow, process, store, transport, and consume food in one geographic area, with all participants close in distance.

The study identifies local food needs and addresses the quality and quantity of land and water required to meet those needs. It also examines the impact of hidden costs or "externalities," factors that may be negative or positive and that are often overlooked in analyzing the cost of food production.

The study team purposefully sought to include a range of views on the topic rather than advocating a specific position.

Note on Food Requirements

We determined total food requirements for Missoula County by multiplying per capita food requirements by number of people.

We used a U. S. Dept. of Agriculture "DASH" (Dietary Approaches to Stop Hypertension) figure of 2000 calories per capita per day as the average calorie requirement, and we considered two versions of the DASH diet. In the first, the quantity of meat consumed is divided equally between chicken and beef. The second is a vegetarian diet that includes milk.

Growing at an average rate of 13.6 percent per decade, Missoula's population is projected to reach 110,000 in 2010 and estimated to reach 142,000 by 2030.

Our Local Resources for Meeting Food Needs

Two important determinants of crop yields are soil quality and the availability of adequate moisture. These determinants vary greatly in Western Montana, which can cause significant fluctuations in production—a major concern in planning for greater food security. Although our area could in theory produce all its own food, our food supply could also become more vulnerable to adverse weather.

Land

National, state, and local agencies use five levels of soil classification for farmland: prime, prime if irrigated, of state importance, of local importance, and of unique importance.

The best soils for farming are prime and prime if irrigated. Most soils of local importance are suitable only as grassland pasture because of their poor moisture retention. The prospect of increasing the amount of suitable agricultural land by upgrading less-suitable land is limited, and the process is lengthy and expensive.

Since 1987, about 27,000 acres of agricultural land has been reclassified as non-agricultural, but it is not clear how much of this land has actually been permanently converted to non-agricultural use. Although it is difficult to estimate the total amount of remaining agricultural land, it is most probably no more than 110,000 acres. We have assumed that there is roughly 20,000 acres of prime and prime-if-irrigated land left. Most of the remaining land in Missoula is classified as forest or is otherwise unsuitable for most crops.

Looking at prime land alone, Missoula County has only 1,100 acres, all of which is located in the Ninemile Valley in the northwest portion of the county. Most of Missoula County's roughly 28,000 acres of prime-if-irrigated land is located in the geographical center, in and around Missoula, and in the Missoula County portion of the Jocko Valley. Most prime soils have been divided into plots of less than 40 acres, a size that limits their agricultural potential.

Water

Annual precipitation in most areas suitable for crop

production is less than 17 inches on average, but timing is more critical to successful crop production than the total amount. In contrast to eastern parts of the state, only about 40 percent of total precipitation occurs during the cropping season in our area. Reasonably drought-tolerant crops are grown in parts of the county under dry-land conditions.

Do Our Resources Meet Our Requirements?

Currently, Missoula relies on food from outside the area to meet most of its food needs. There are almost certainly enough natural resources in the county to meet Missoula's current and future food needs, depending mainly on the prevailing diet. The DASH chicken-beef diet would consume virtually all available agricultural land and would require significant investments in land quality and irrigation to be sustainable. Should Missoula wish or be forced to produce most or all of its own food, residents would need to find ways to achieve higher productivity and make more efficient use of land and water.

Land

The more meat (particularly beef) in the diet, the more land that is required. Carrying capacity of grazing lands is currently very low, but it could be significantly increased through better management.

The amount of land required for the DASH chicken-beef diet is 153,000 acres to feed the projected 2010 population and 175,000 acres to feed the estimated 2030 population—exceeding the estimated 110,000 acres of agricultural land available now. The only way to accommodate the feed requirements of the herd size needed for this diet would be through a major upgrading of pasture and grazing areas.

Relatively little land is required to produce adequate supplies of foods such as fruits and vegetables, although food preservation arrangements are critically important, given our short growing season.

Water

Representatives from the local offices of the NRCS, the Department of Water Resources, and the Montana Water Trust offer this "best guess": There is enough water in Missoula County to irrigate sufficient farmland to meet our basic food requirements, depending on the amount of meat in our diet and the extent of improvements in irrigation efficiency.

Prospect for Improvement

In general, higher levels of management--including better crop varieties, improved fertilization, effective pest control, and timing of irrigation--translate into greater productivity.

Better management usually means higher costs, most notably access to water through an efficient irrigation system. Irrigation improvement would require significant investments. Ground water is available from the Missoula aquifer, but this is not a renewable resource.

The estimates of the land required to meet Missoula County's food needs have not considered the possible effects that technological change and associated improvements in management practices will have on the future productivity of local agriculture. However, many of the changes will require inputs from elsewhere, notably seeds and agricultural chemicals.

Two other factors of note:

- A significant portion of Montana's most experienced farm managers are at or near retirement.

- The conclusion that resources are adequate assumes that significant portions of open areas remain undeveloped.

Impact of Climate Change

Western Montana's climate does not currently favor most crops. Warming trends will allow earlier planting and reduce damage from cold, but will also reduce yields--of potatoes in particular. These changes are more than offset by the positive effects of elevated carbon dioxide levels, at least over the next three decades. Thereafter, the net effects of climate change will become progressively more negative.

Social and Economic Perspectives

Changing Times on the Farm

Missoula's food economy reflects changes in society:

- Transformation from an agrarian to a non-agrarian economy. By 2007, only 1 percent of the annual payroll of Missoula County came from agriculture and related activities.
- Globalization of trade. Although much of the food other countries consume comes from the U.S., Missoula remains at a competitive disadvantage to other parts of the country, because of topography and other factors.
- Technological change, notably improvements in economy of scale. These changes have disproportionately favored other parts of the country and the state, deepening the competitive disadvantage of farmers in our area.
- Growth of personal incomes, which changes lifestyles and dietary preferences. Food expenditure as a proportion of disposable income has fallen from 13 percent in 1982 to 10 percent in 2007.

In addition, agriculture has seen the rise of large multinational corporations. While family farms still contribute significant production, many of them are quite large.

Although the number of small, part-time farmers may actually increase, as seems to have happened in Missoula County in the past few decades, agriculture is not the primary source of income for most farmers in the county. A case in point is the Hmong community in Missoula: the Hmong garden and sell produce locally as supplemental income and a way to stay connected to their past and to the community.

Implications for Missoula Farmers

On balance, recent trends have worked to the disadvantage of local food producers and processors. Farmers now must ship their raw produce elsewhere, which makes little financial sense in small-scale agriculture.

Local farmers selling seasonal produce face stiff competition. Consumers can now get whatever they fancy year-round from the local supermarkets that source food from around the globe. Many people are both willing and able to pay a premium for local food, but they are likely to remain a minority.

Agricultural value-added through marketing and processing can improve the viability of local agricultural enterprises. But such efforts require time, expense, and skills of farm managers not currently exhibited.

In addition, the average age of farm managers in the area has been increasing for decades and is now over 60. The Land Link Program of CFAC recognizes this development and aims to connect beginning farmers, non-farming landowners, and retiring farmers/ranchers in order to keep agriculture alive for generations to come.

Despite the obstacles, there are farms in Missoula County and surrounding areas that are at least surviving. The CFAC study "Our Foodshed in Focus" suggests that some are commercial farmers who have found ways to operate profitably at a smaller scale, possibly by focusing on high-value crops.

Two Scenarios Considered

What will be the impact on our food supply if we experience economic decline? On the other hand, what is the impact if we enjoy continued prosperity?

While the study team does not consider serious decline to be likely, such conditions could ultimately require residents to rely primarily on food produced locally.

The probable decline of land values would reduce or eliminate that source of pressure on farming operations. But the combination of lower output prices, weaker markets, and higher debt-servicing costs could lead to the failure of many commercial agricultural enterprises and foreclosures, as happened during the 1930s. The initial effects on Missoula's LFS would likely be negative, as consumers became unable to pay premium prices for local food.

An economic catastrophe, however, could require residents of Missoula to fend for themselves, including producing all their own food. Cuba faced economic adversity following the collapse of the Soviet Union, but growing fresh produce has provided thousands of remunerative jobs and made Cubans switch to healthier diets. Today, Havana, the capital city, has about 200 urban plots that have contributed to making Cuba almost self-sufficient in fruits and vegetables. Montana's climate would make it difficult to replicate the Cuban model, but the Missoula area could produce significantly more of its own food needs, if required.

If, on the other hand, economic prosperity continues as it has for the last half century, local agricultural enterprises will continue to face formidable financial pressures from rising land values and greater competition from other regions. Even rising transport costs may not make local production of food commodities competitive. At the same time, prosperity should strengthen the inclination and ability of Missoula's residents to support their LFS.

Conclusions

Our findings suggest that there are currently adequate amounts of land and water to feed ourselves depending on how much meat, particularly beef, we have in our diets.

In order for Missoula to meet a greater share of its food needs, a portion of land used for cow-calf operations would have to be devoted to growing human food rather than cattle feed, and the overall productivity of both land and water resources would have to be significantly increased.

The production of relatively high-value crops such as fruits and vegetables has the best chance of being viable and self-sustaining. The best lands for this purpose, however, tend to be the prime soils, closest to the city, where development and land price pressures are the greatest. In addition, it would be necessary to find enough younger people who want to farm and have the necessary skills and resources.

Considering these factors, local farmers producing primarily or exclusively for local markets may not be the best strategy for preserving agricultural land and farm enterprises in our area. Also, the review of socio-economic trends and opposing future scenarios (decline or continuing prosperity) suggests that local food self-sufficiency is a goal we should pursue only if it is forced upon us.

Legal Memorandum

About the Author

William K. VanCanagan is an attorney admitted to practice in Montana and U.S. District Court for the District of Montana in 1981, to the U.S. Tax Court and U.S. Court of Federal Claims in 1997, and to the 10th Circuit of the U.S. Court of Appeals in 1999. He represents numerous clients in the area of land use and zoning; including owners and developers of subdivision and condominium projects, private land owners, homeowners associations and engineers. He has had extensive review and input regarding subdivision regulations, zoning proposals, city and county regulations and costs associated with regulation and zoning.

VanCanagan has experience in representation of private property rights interests in real estate subdivision, development, easement issues, water rights, transferable development rights, impact fees, zoning, and the Fifth and Fourteenth Amendments to the United States Constitution. He is active in real estate practice and representation of numerous individual farmers and ranchers, land owners, developers, Realtors, and construction companies in connection with their respective real estate business and land use and real estate legal issues.

Background

The Montana Subdivision and Platting Act (MSPA), 76-3-101, *et seq.*, was enacted by the 43rd Legislative Assembly largely in response to growing public concern for the rapid and then largely unregulated subdivision of Montana land for speculative, recreational, and residential purposes. Any reasonable interpretation of the legislative history makes clear that the MSPA was not intended to unjustifiably interfere with development.

1975 Amendments

The first significant revision of the MSPA occurred in 1975, with a new section listing eight criteria by which local governments should weigh subdivision applications, one of which is "effects on agriculture." In the event of finding an adverse effect on agriculture, the developer is responsible for paying costs of the effects. This in no way suggests that taking agricultural land out of production is considered an impact contemplated under the MSPA.

1993 Amendments

Amendments to the MSPA in 1993 did not alter the intent to avoid interfering with development. As one legislator stated, "There is no need for ... additional red tape, delays, or unnecessary restrictions for landowners, purchasers, or developers."

Current Legal Status

Statutory Framework & Zoning Solutions

Any reasonable interpretation of the legislative history of the MSPA indicates that, if the drafters of the act or its subsequent amendments intended a government body to merely look at net land removed from agricultural stock, the statute could very easily have provided for that. Under rules of statutory construction, local government officials are precluded from inserting omitted terms into the statutory scheme. Thus, any interpretation holding that the impact on agriculture criterion may be used to accomplish open space objectives would be unwarranted.

The MSPA provides that a local government body look at specifics of a proposed subdivision and not at community-wide (or even global) concerns such as open space preservation or food security.

"Takings" Issues and Interpretive Case Law: "Nollan" and "Dolan"

Opposition to a subdivision proposal based on the preservation of a community's or county's food-growing capability is misdirected. This approach may result in a taking of private land, requiring just compensation under the constitutions of the U.S. and Montana.

In its "Nollan" decision, the U.S. Supreme Court found that a local government's requiring a landowner to grant an access easement for a public trail in order to win approval of a building permit application amounted to an unconstitutional taking of private property, requiring just compensation. In the "Dolan" case, the Supreme Court ruled that a city's otherwise legitimate interest in minimizing exposure to potential flooding could not be carried out as a condition for individual landowners to win approval of their intended development.

One effect of these cases is that local governments must quantify any findings that a subdivision would adversely impact agriculture or interfere with open space, and failing to do so may amount to an unconstitutional taking.

Conclusions

The legislative history of the MSPA shows that findings of agricultural impacts are designed to protect surrounding farmers rather than to prevent development of farmland. The history in no way indicates that there is to be any consideration of a proposed subdivision's effects on a county's ability to sustain its food-growing capability.

Taking agricultural land out of production is not an "impact" contemplated under the MSPA.

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